

## **Abstract**

The invention relates to a time-of-flight mass spectrometer for injection of the ions orthogonally to the time-resolving axis-of-flight component, with a pulser for acceleration of the ions of the beam in the axis-of-flight direction, preferably with a velocity-focusing reflector for

5 reflecting the ion beam and with a flat detector at the end of the flight section.

The invention consists of using, both for acceleration in the pulser and for reflection in the reflectors, a gridless optical system made up of slit diaphragms which can spatially focus the ions onto the detector in the direction vertical to the directions of injection and flight axis, but which does not have any focusing or deflecting effect on the other directions. For some re-

10 flector geometries it is essential to use an additional cylindrical lens for focusing, and for other reflector geometries the use of such a lens may be advantageous.

Fig. 1

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